



# **Backlog of Maintenance - Major Rehabilitation and Major Maintenance - Mississippi River & Illinois Waterway Locks And Dams**

**U.S. ARMY CORPS OF ENGINEERS**

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## **Location**

Mississippi River & Illinois Waterway Locks And Dams

## **State(s)**

IA, IL, MO, WI

## **Congressional District(s)**

IA-1, IA-2, IA-3, IA-4, IL-11, IL-13, IL-14, IL-15, IL-16, IL-17, IL-18, IL-2, IL-3, MN-1, MN-7, MO-6, WI-1, WI-2, WI-3, WI-5, WI-6

## **Status**

Operations and Maintenance and Major Rehabilitation Programs are unable to adequately fund maintenance activities to ensure the navigation system operates at an acceptable level of performance.

The Mississippi Valley Division created a Product Delivery Team in early 2006 to address this problem regionally for the entire Mississippi River and Illinois Waterway Locks and Dams systems. Prior to creating the regional PDT, the amount of maintenance being deferred was increasing for some locks and dams in some districts while other districts were awarding contract improvements annually. The regional approach improved this inequity. The PDT meets regularly, at least quarterly or more often as necessary.

MVR is focused and committed to component replacement, which provides site and system reliability.

## **Description**

The Major Rehabilitation and Major Maintenance Program for the Locks and Dams on the Mississippi River and Illinois Waterway has been ongoing since 1975.

- Major rehabilitation consists of reliability or efficiency improvements.
  - Reliability improvements are considered when they significantly extend the physical life of a component, have direct consequences to navigation and ecosystem, and can be economically justified by benefit-to-cost analysis. The region focuses on this method of major rehabilitation.
  - Efficiency improvements are considered if they enhance operation efficiency of the component.
- Major maintenance is categorized as major repairs or improvements that don't qualify for major rehabilitation and must be funded out of the regular O&M Budget.
- The remainder of the regular O&M Budget dollars are used for baseline (routine) operation and maintenance.
- Through use of new Asset Management tools, O&M funding is being targeted from a more corporate posture to the structures with the highest risk and probability of failure in alignment with impact costs to navigation. Through this focused funding model, local funding is increasing within Rock Island District due to the overall need and risk of Lock and Dam Structures. These funds support component life extensions and focus on



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reliability vice significant facility life extensions.

- Although targeted funding for component replacement increases near term reliability, facility life extensions are critical for system long term durability.

## MAJOR MAINTENANCE OF MISSISSIPPI RIVER AND ILLINOIS WATERWAY LOCKS AND DAMS

<u>L&amp;D Components not Justified for Major Rehabilitation</u>	<u>Consequence of not Doing Work</u>
Lock Miter Gates	Miter gate failure would cause closure of locks to all navigation and shipments.
Auxiliary Miter Gates	Continued deterioration and potential loss of pools for navigation and ecosystem sustainability.
Lock and Dam Electrical Systems	Electrical failures cause temporary power outages to lock and dam operating machinery. Such failures would impact lock operation as well as pool regulation for navigation and ecosystem sustainability.
Repair Dam Roller and Tainter Gates	Deterioration of gate structures is occurring with possible failure and inability to regulate pool for navigation and ecosystem management.
Lock and Dam Concrete	Concrete supports and protects lock and dam operating machinery and gates. Concrete is deteriorating exponentially. Concrete failures are now more frequent creating a greater probability of damage to miter gates by transiting tows. Allowing more potential for inability to manage pools for navigation and ecosystem sustainability.

### Summarized Project Costs

The Mississippi Valley Division Regional Backlog of Maintenance is valued at around \$1.2B with close to 400 identified items (2010 values). Rock Island District's portion of the list includes 183 items with an approximate total value of \$725M; or more than 60 percent of the Regional total. Some of the highest ranking Rock Island District maintenance projects include the following:

- Illinois Waterway LaGrange L/D Major Rehabilitation and Major Maintenance
- Illinois Waterway O'Brien L/D Major Rehabilitation/Major Maintenance
- Mississippi River L/D 18 Major Rehabilitation/Major Maintenance
- Systemic Miter Gate Replacement @ Multiple L/D Sites on the Mississippi River and the Illinois Waterway
- Mississippi River L/D's 11, 12, 13 Auxiliary Bay Gates Replacement
- Systemic Bulkhead Slots @ Multiple Locks on the Mississippi River
- Mississippi River L/D's 20, 21, 22 Auxiliary Bay Gate Bulkhead Slot



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- Mississippi River L/D 18 Dam Concrete Repairs (Safety)

## **Authority Details**

River and Harbor Act of 1930

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